

**Dynamic epithelia of the developing vertebrate face.**

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**Public Summary:**

In this review, Choe et al show how the cell layer overlying and underneath the developing face determine the shape of the head skeleton, promote opening of the mouth, and contribute to important organs such as the thymus and parathyroid.

**Scientific Abstract:**

A segmental series of endoderm-derived pouch and ectoderm-derived cleft epithelia act as signaling centers in the developing face. Their precise morphogenesis is therefore essential for proper patterning of the vertebrate head. Intercellular adhesion and polarity are highly dynamic within developing facial epithelial cells, with signaling from the adjacent mesenchyme controlling both epithelial character and directional migration. Endodermal and ectodermal epithelia fuse to form the primary mouth and gill slits, which involves basement membrane dissolution, cell intercalations, and apoptosis, as well as undergo further morphogenesis to generate the middle ear cavity and glands of the neck. Recent studies of facial epithelia are revealing both core programs of epithelial morphogenesis and insights into the coordinated assembly of the vertebrate head.

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